

SEQUENCE LISTING

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TECH CENTER 1600/2900

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Tsai, Chung-Jui
Hu, Wen-Jing

<120> GENETIC ENGINEERING OF LIGNIN BIOSYNTHESIS IN PLANTS

<130> 66040-9651

<140> 09/530,663

<141> 2000-07-11

<150> PCT/US98/24138

<151> 1998-11-12

<150> 08/969,046

<151> 1997-11-12

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<170> Word 97 (DOS text format)

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Val Leu Glu Asn Leu Ser Lys His Ser Ser Lys Pro Cys Leu Ile Asn	
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Arg Arg Val Ala Ser Gly Leu Asn Lys Ile Gly Ile Gln Gln Gly Asp	
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Val Ile Met Leu Phe Leu Pro Ser Ser Pro Glu Phe Val Leu Ala Phe	



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Leu Leu Ile Thr Gln Ala Cys Tyr Tyr Glu Lys Val Lys Asp Phe Ala	125	130	135	
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Glu Lys Tyr Lys Val Ser Ile Ala Pro Val Val Pro Pro Val Met Met	270	275	280	
gca att gct aag tca cct gat ctt gac aag cat gac ctg tct tct ttg				976
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Ala Glu Met Lys Ile Val Asp Pro Glu Thr Gly Val Ser Leu Pro Arg	
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Trp Leu His Thr Gly Asp Ile Gly Tyr Ile Asp Asp Asp Asp Glu Leu	
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Lys Arg Val Phe Phe Ile Glu Ala Ile Pro Lys Ala Pro Ser Gly Lys	
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Ile Leu Arg Lys Asn Leu Lys Glu Lys Leu Pro Gly Ile	
525 530 535	

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<213> Populus tremuloides Michx. (aspen)

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Lys His Ser Ser Lys Pro Cys Leu Ile Asn Gly Ala Asn Gly Asp Val
          35          40          45
Tyr Thr Tyr Ala Asp Val Glu Leu Thr Ala Arg Arg Val Ala Ser Gly
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Leu Asn Lys Ile Gly Ile Gln Gln Gly Asp Val Ile Met Leu Phe Leu
65          70          75          80
Pro Ser Ser Pro Glu Phe Val Leu Ala Phe Leu Gly Ala Ser His Arg
          85          90          95
Gly Ala Met Ile Thr Ala Ala Asn Pro Phe Ser Thr Pro Ala Glu Leu
          100          105          110
Ala Lys His Ala Lys Ala Ser Arg Ala Lys Leu Leu Ile Thr Gln Ala
          115          120          125
Cys Tyr Tyr Glu Lys Val Lys Asp Phe Ala Arg Glu Ser Asp Val Lys
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Val Met Cys Val Asp Ser Ala Pro Asp Gly Ala Ser Leu Phe Arg Ala
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His Thr Gln Ala Asp Glu Asn Glu Val Pro Gln Val Asp Ile Ser Pro
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Asp Asp Val Val Ala Leu Pro Tyr Ser Ser Gly Thr Thr Gly Leu Pro
          180          185          190
Lys Gly Val Met Leu Thr His Lys Gly Leu Ile Thr Ser Val Ala Gln
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Gln Val Asp Gly Asp Asn Pro Asn Leu Tyr Phe His Ser Glu Asp Val
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Ile Leu Cys Val Leu Pro Met Phe His Ile Tyr Ala Leu Asn Ser Met
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Phe Glu Ile Gly Ser Leu Leu Gly Leu Ile Glu Lys Tyr Lys Val Ser
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Asp Leu Asp Lys His Asp Leu Ser Ser Leu Arg Met Ile Lys Ser Gly
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Pro Gln Ala Arg Leu Gly Gln Gly Tyr Gly Met Thr Glu Ala Gly Pro
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ata tct cgg aag gtc gct gct ggg tta tcc aat ttg ggc atc aag aaa	288
Ile Ser Arg Lys Val Ala Ala Gly Leu Ser Asn Leu Gly Ile Lys Lys	

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Gly	Asp	Val	Ile	Met	Thr	Leu	Leu	Gln	Asn	Cys	Pro	Glu	Phe	Val	Phe	
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Ser	Phe	Ile	Gly	Ala	Ser	Met	Ile	Gly	Ala	Val	Ile	Thr	Thr	Ala	Asn	
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cct	ttc	tac	act	caa	agt	gaa	ata	ttc	aag	caa	ttc	tct	gct	tct	cgt	432
Pro	Phe	Tyr	Thr	Gln	Ser	Glu	Ile	Phe	Lys	Gln	Phe	Ser	Ala	Ser	Arg	
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Ala	Lys	Leu	Ile	Ile	Thr	Gln	Ser	Gln	Tyr	Val	Asn	Lys	Leu	Gly	Asp	
145	150				155				160							
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Ser	Asp	Cys	His	Glu	Asn	Asn	Gln	Lys	Pro	Gly	Glu	Asp	Phe	Ile	Val	
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Asp	Pro	Val	Ala	Leu	Pro	Phe	Ser	Ser	Gly	Thr	Thr	Gly	Leu	Pro	Lys	
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Val	Asp	Gly	Glu	Ile	Pro	Asn	Leu	Tyr	Leu	Lys	Gln	Asp	Asp	Val	Val	
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Leu	Cys	Val	Leu	Pro	Leu	Phe	His	Ile	Phe	Ser	Leu	Asn	Ser	Val	Leu	
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Leu	Cys	Ser	Leu	Arg	Ala	Gly	Ser	Ala	Val	Leu	Leu	Met	Gln	Lys	Phe	
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<212> DNA

<213> Populus tremuloides Michx. (aspen)

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ttaaaatccc	taatctcacc	aacccaactc	cacagattct	tcaccaaacy	caactgattt	960
ttcaatcaat	gttttcccta	tactaccccc	ccaacaactc	cataataccc	aatttgtcct	1020
ttcaccaacc	cccgctcctc	gtgccagcca	attctatatc	agcaggaatg	ctctgcactc	1080
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1172

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 <213> Populus tremuloides Michx. (aspen)

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 tattttttta aaaattttaa aattaaatta taacattttt attttatccc tcattaacta 180
 aaatagggat ggtaatagat attcatgaag ggagttatat atcaaagat attagttaag 240
 ctattttgat atttatacc taccattac ttatggaata aaaaatttag atatttataa 300
 aatatttatac ggatttcagg tattcatatg aatatttatt tgattattat ttattcaaca 360
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 aataaattca cctaaattag gttgggtttg tattcatcaa gttaacatta aattgtaatt 540
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 gctoctgtat ttattacacc ttgctcgatt ggctccgtcc tcgtacacgc atccacaccg 1080
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 <212> PRT
 <213> Populus tremuloides Michx. (aspen)

<400> 7
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<210> 8
 <211> 7
 <212> PRT
 <213> Populus tremuloides Michx. (aspen)

<400> 8
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 1 5

<210> 9
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31

<210> 10

<211> 28
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 <400> 10
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 <210> 11
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 <212> DNA
 <213> Populus tremuloides Michx. (aspen)

 <400> 11
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 <210> 12
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 <213> Populus tremuloides Michx. (aspen) unknown

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 <210> 13
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<400> 17
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